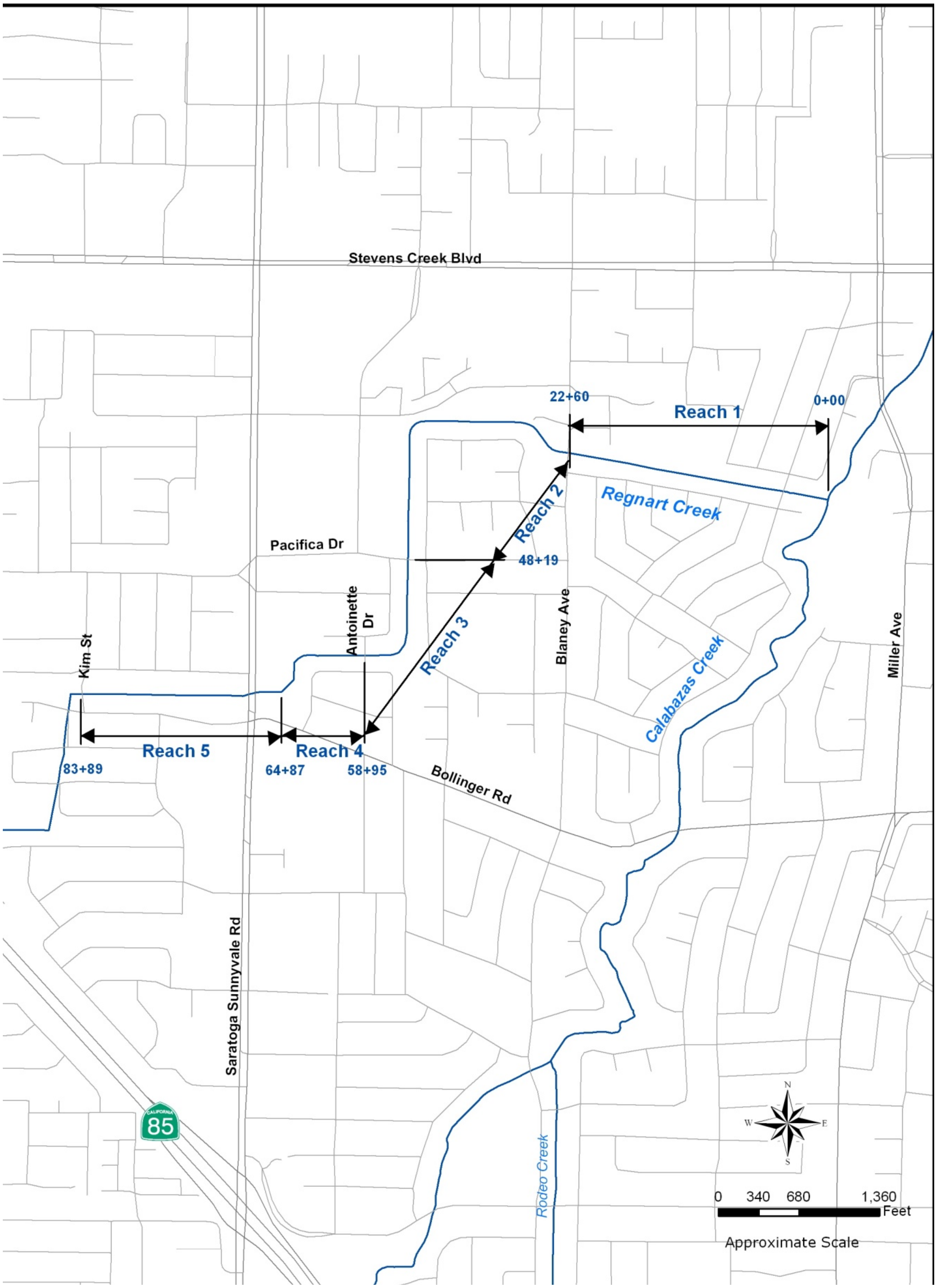
APPENDIX B

CALABAZAS CREEK
Tributary Supplement

Regnart Creek Reach Map



Regnart Creek Reaches

Calabazas Creek confluence to Kim Street

CALABAZAS CREEK
Tributary Supplement - Regnart Creek Reach #1

Reach 1: From Calabazas Creek Confluence to upstream of Blaney Avenue Bridge (Sta. 0+00 to Sta. 22+60)

Reach Description:
This reach is characterized by a very straight alignment and a uniform trapezoidal cross section. The channel runs east to west and begins as a completely uniform concrete channel with 1:1 side slopes for the first 500 feet. The channel then has an earthen north bank with a side slope of roughly 2:1, while the eastern bank continues with a side slope of roughly 1:1 covered by a concrete slab for the entire length of the reach. The channel invert is covered with occasional vegetation and limited sediment deposition. Riparian cover is very limited with only the occasional tree or brush. Dried grass covers most of the banks above the concrete. There was no erosion evident in this reach.

Reach Average Invert Slope: Invert approximate average slope for this reach is 0.003 (Sta 0+00 to Sta 22+60).

1% Flow: 560 cfs

10% Flow: 370 cfs

Current Reach Capacity: This reach has the capacity to convey 1% flow (560 cfs) from Calabazas confluence to upstream of Blaney Avenue.

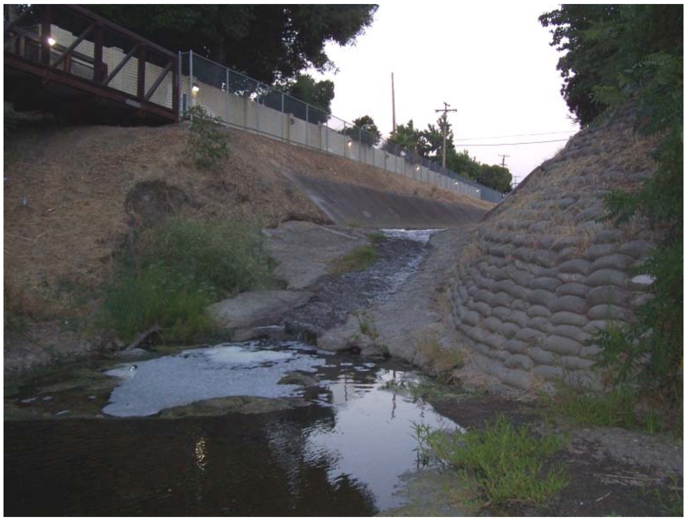
Reach Flooding area Profiles: No flooding issues exist within this reach.

Reach Roughness Coefficient: For this report the roughness coefficient of .05 for natural channel, .044 for rock bed, and .036 for sack concrete was used. For areas with concrete material (bridges and wing walls and etc.) the roughness coefficient was .015.

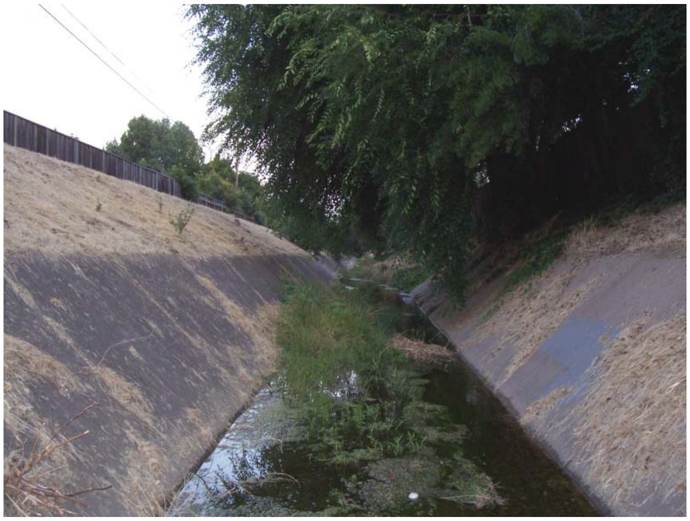
Reach Typical Photos: See the following pages for typical photos and their channel descriptions. Pagination of photos is 1-1 to 1-2. For location and stationing see Figure 1.

Reach Erosion Problem: The concrete protection and straight alignment has prevented any significant erosion problems.

REGNART CREEK

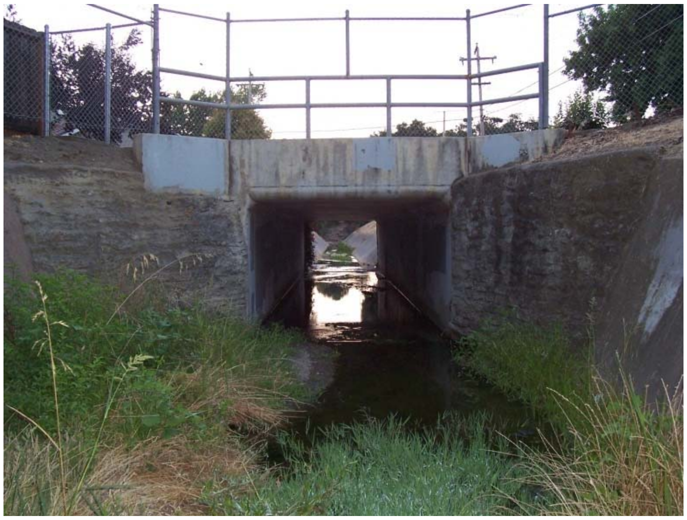


(1) sta. 0+00 Drop @ confluence with Calabazas Creek



(5) sta. 4+80 Looking u/s from just u/s of E. Estates Dr. culvert

(2) sta. 4+00 Service road on south bank after E. Estates Dr culvert

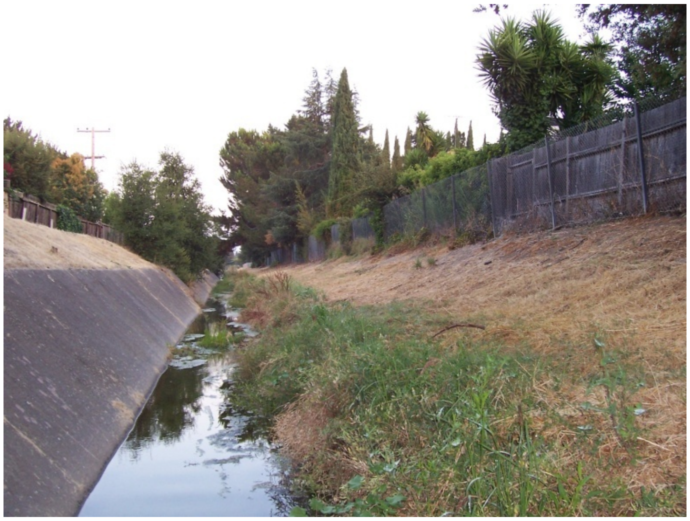


(4) sta. 4+80 Looking d/s @ u/s face of E. Estates Dr. culvert

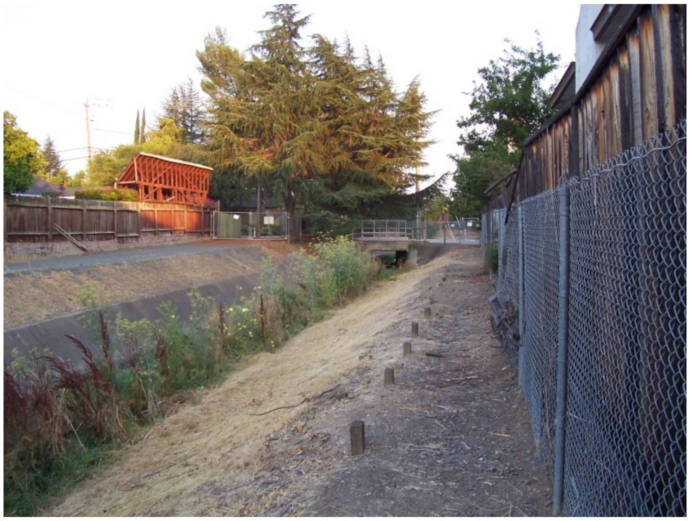
Channel Description:

The pictures show the general characteristics of this reach- straight alignment, moderate slope, and concrete protection on both sides and bottom of channel

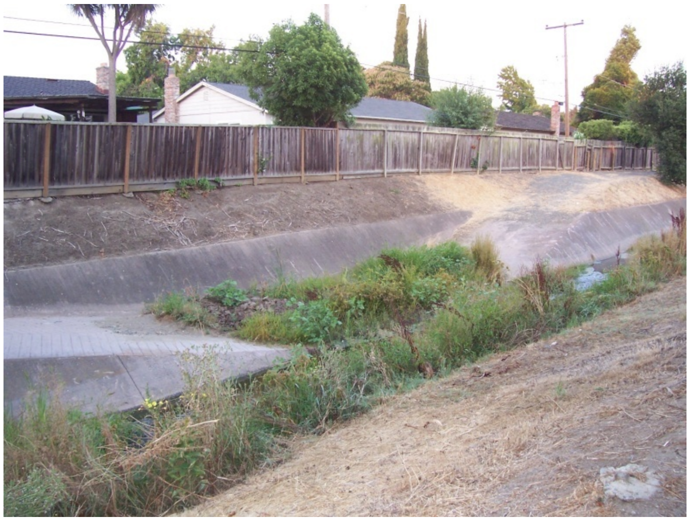
REGNART CREEK



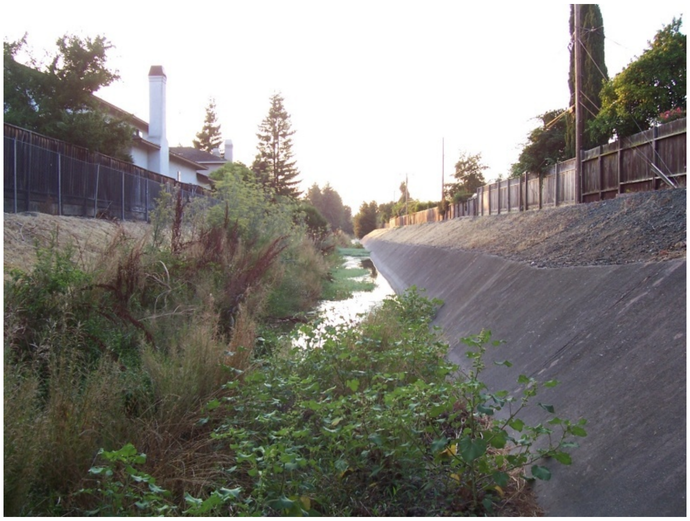
(6) sta. 7+50 Looking u/s- concrete slope south bank, earthen north bank



(13) sta. 20+50 Looking u/s @ Blaney Ave. culvert from northern bank



(10) sta. 14+50 Access road dual ramp on south bank across from park



(15) sta. 21+50 Looking d/s from d/s face of Blaney Ave. culvert

Channel Description:

There is concrete protection on the southern bank which has a 1:1 slope. The northern bank is a grass covered earthen slope of roughly 2:1. The northern fence line has been pushed back about 4 feet at some prior date. The limited vegetation occurs along the channel invert with a few bushes along the bank.

CALABAZAS CREEK
Tributary Supplement - Regnart Creek Reach #2

Reach 2: From upstream of Blaney Avenue Bridge to upstream of Pacifica Drive Bridge (Sta. 22+60 to Sta. 48+19)

Reach Description:
Although a trapezoidal manufactured channel, this reach exhibits more variation than downstream. The concrete protection continues on the southern bank only for the first part of an s-bend upstream of Blaney Avenue. A floodwall begins at Sta 26+45 on the northern bank after the s-bend and continues for approximately 500ft. The channel is then aligned east to west before making a right angle turn and aligning north to south. A large portion of the banks are covered with sacked concrete and there are large boulders both in the channel and used as bank slope protection. A drop structure is located just upstream of the floodwall at approximately Sta. 33+00. After the 90 degree bend and up to Pacifica Drive, the channel is covered with dried grass with an eroded, incised invert and only the occasional tree or brush.

Reach Average Invert Slope: Invert approximate average slope for this reach is 0.005 (Sta 22+00 to Sta 48+19).

1% Flow: 500 cfs

10% Flow: 330 cfs

Current Reach Capacity: This reach has the capacity to convey 530 cfs from upstream of Blaney Avenue to approximately station 26+96 and to convey the 1% flow of 560 cfs from station 26+96 to upstream of Pacifica Drive.

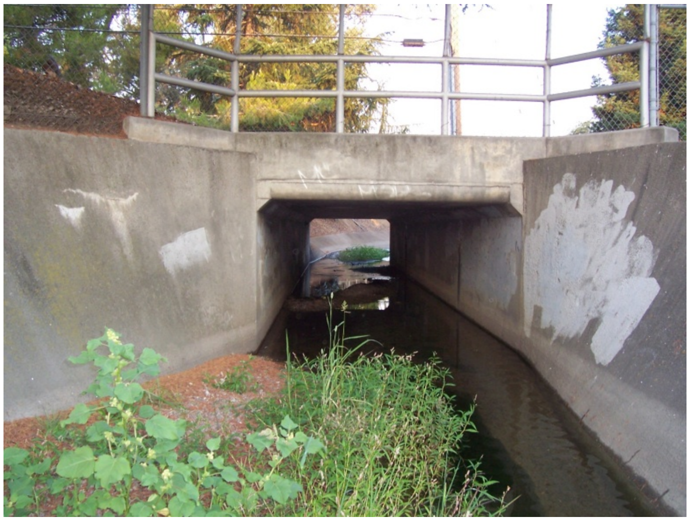
Reach Flooding area Profiles: Flows overbank the north bank between stations 22+84 and 24+11, and just upstream station 26+96.

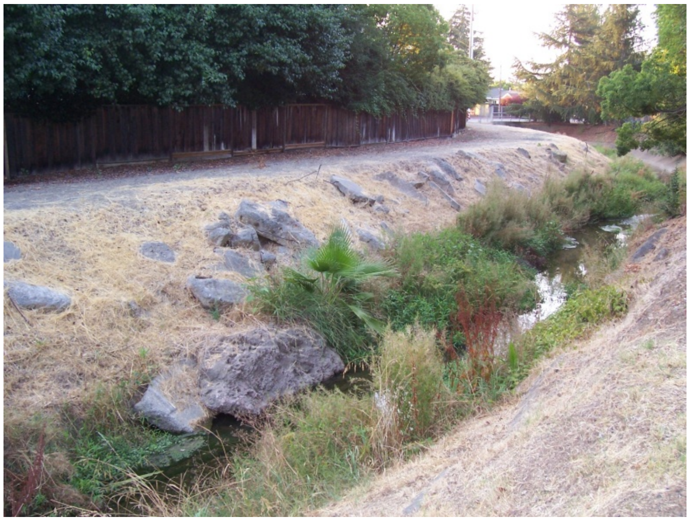
Reach Roughness Coefficient: For this report the roughness coefficient of .05 for natural channel, .044 for rock bed, and .036 for sack concrete was used. For areas with concrete material (bridges and wing walls and etc.) the roughness coefficient was .015.

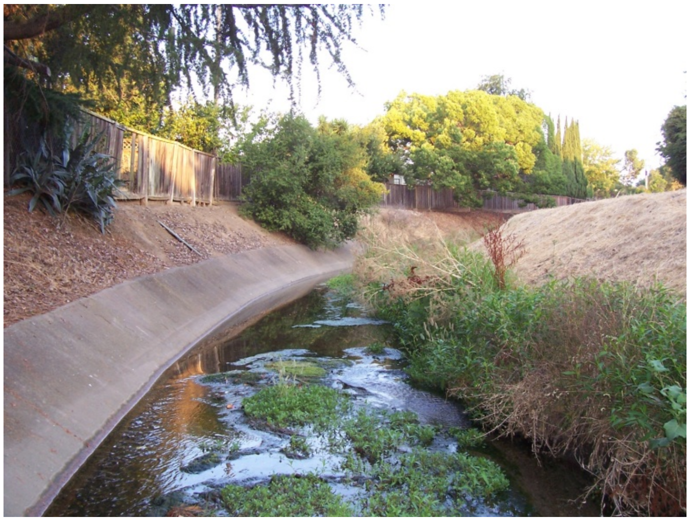
Reach Typical Photos: See the following pages for typical photos and their channel descriptions. Pagination of photos is 2-1 to 2-5. For location and stationing see Figure 1.

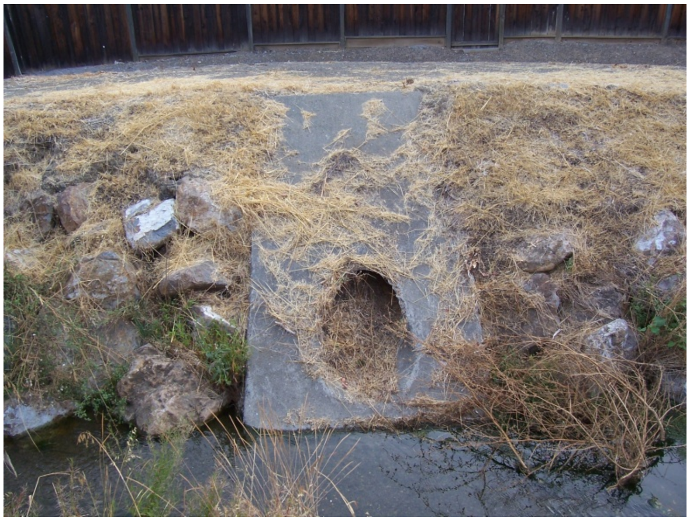
Reach Erosion Problem: Erosion was noted at several locations within this reach. At Sta. 34+50 erosion is present along the base of a sacked concrete transition, at Sta. 36+00 there was toe erosion at the base of the sacked concrete bank at Sta. 37+50 bank erosion was noted on the outside of the bend, and at Sta. 45+00 erosion was present along the west bank just adjacent to some large concrete riprap in the channel.

REGNART CREEK


(14) sta. 21+50 Looking u/s @ d/s face of Blaney Ave. culvert


(22) sta. 25+80 Looking d/s @ concrete riprap in channel

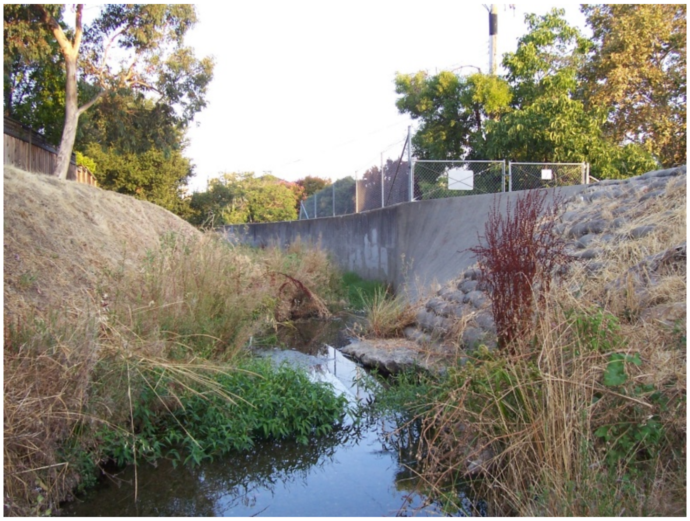

(20) sta. 22+30 Looking u/s from u/s face of Blaney Ave. culvert

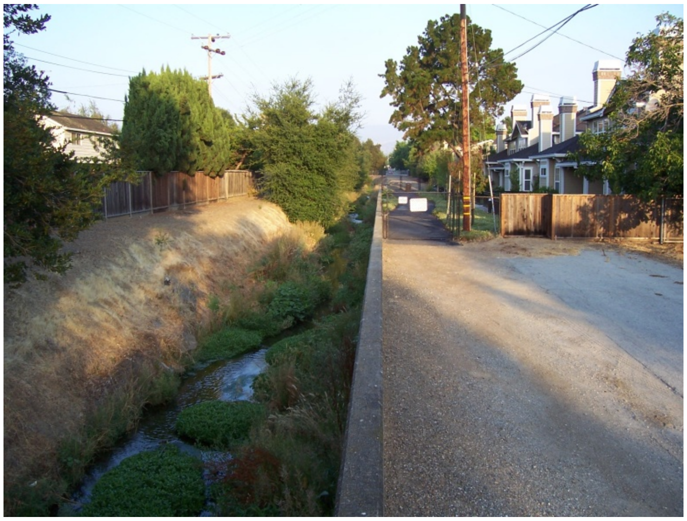

(24) sta. 26+40 Roughly 30" dia. outfall on northern bank

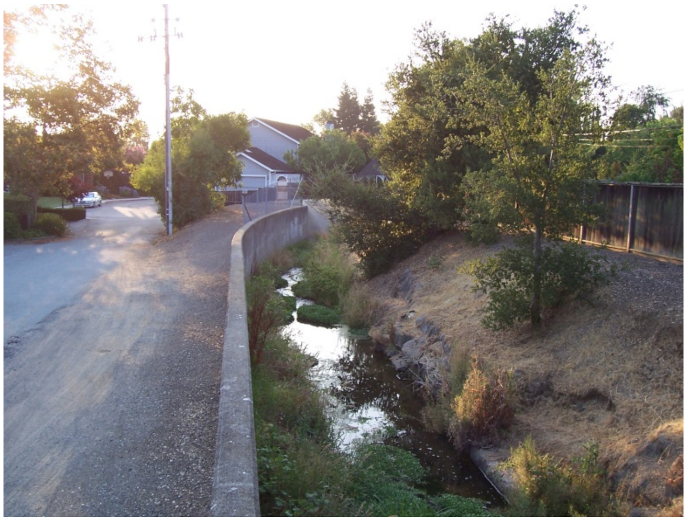
Channel Description:

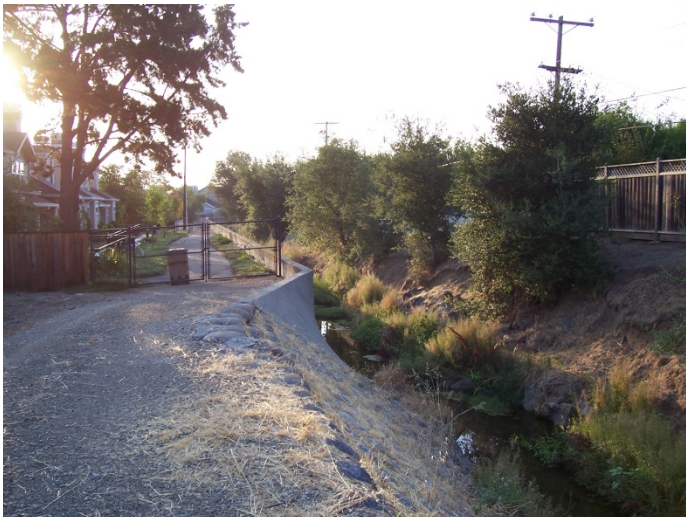
Upstream of Blaney Avenue there is an s-curve in the channel. The concrete south bank protection extends for only the first portion of the bend. Large rocks are used as bank protection and are also distributed along the channel invert.

REGNART CREEK


(25) sta. 26+50 Looking u/s @ beginning of floodwall on northern bank


(29) sta. 28+55 Looking u/s from top of floodwall on northern bank

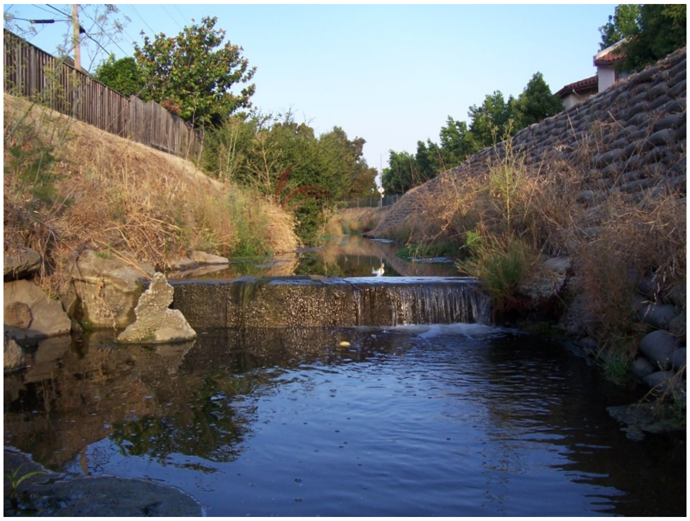

(28) sta. 28+20 Looking d/s from top of floodwall on northern bank


(32) sta. 31+70 Looking d/s @ transition from sacked concrete to floodwall on northern bank

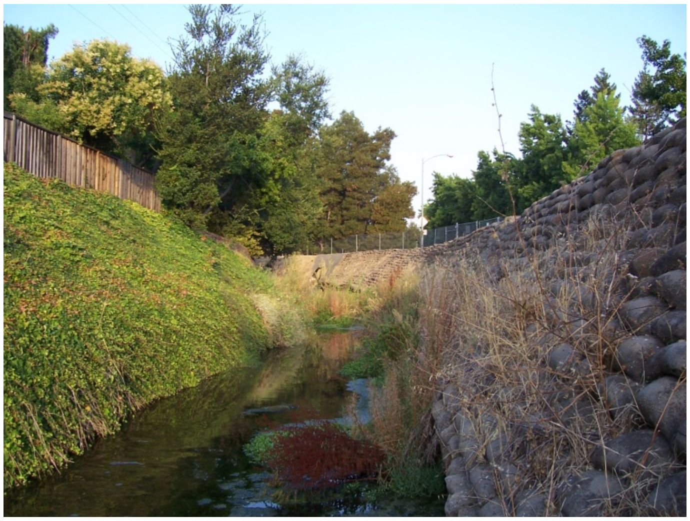
Channel Description:

The trapezoidal channel is characterized by a tall, vertical floodwall along the northern bank. The southern bank has a few trees along the bank which is close to the fence line.

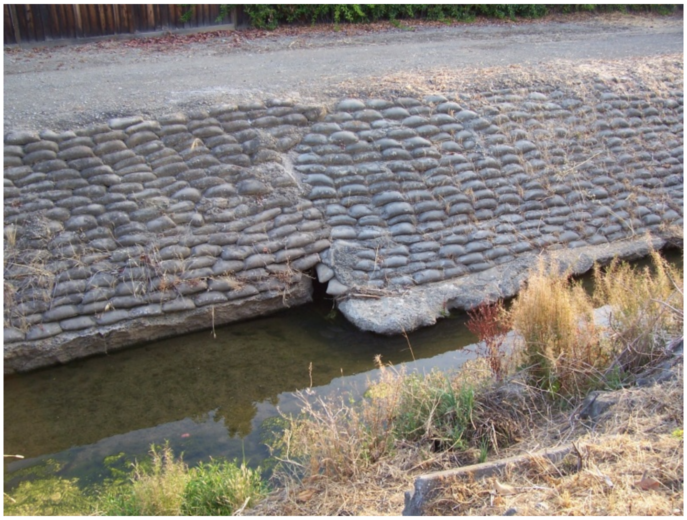
REGNART CREEK



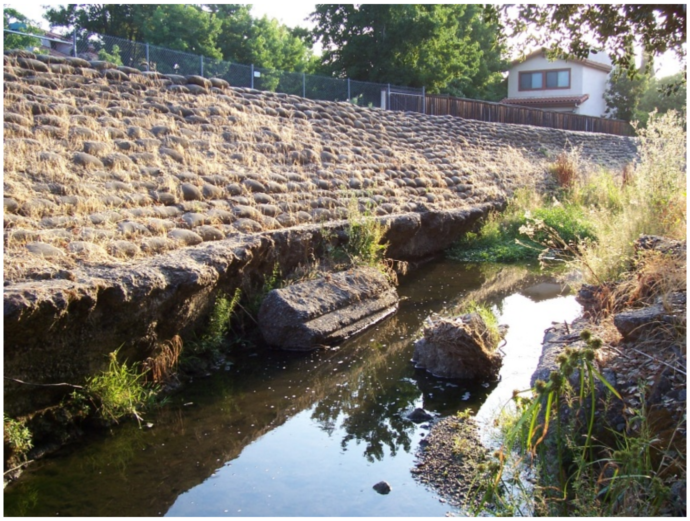
(36) sta. 33+00 Looking u/s @ drop structure from center of channel



(40) sta. 34+50 Looking u/s- sacked concrete on northern bank, ivy covered sacked concrete on southern bank, bend in distance



(38) sta. 34+50 Looking down @ erosion where there is a sacked concrete transition

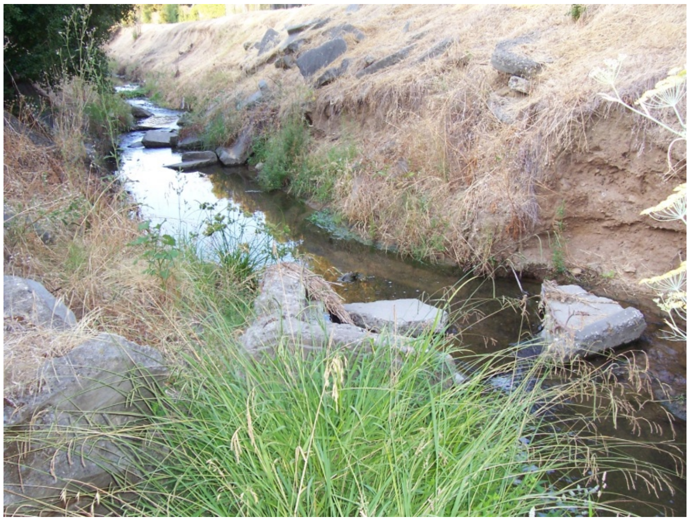


(44) sta. 36+00 Looking d/s- concrete riprap in channel, erosion @ toe of sacked concrete on northern bank

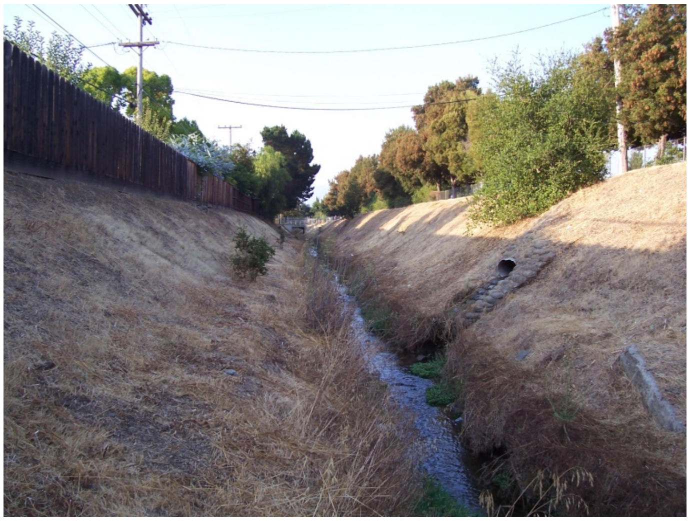
Channel Description:

Extensive use of sacked concrete for bank protection is seen in this section of creek. A drop structure crosses the channel and there is some rock and concrete riprap along the invert. Vegetation is dominated by a large growth of ivy along the southern bank.

REGNART CREEK

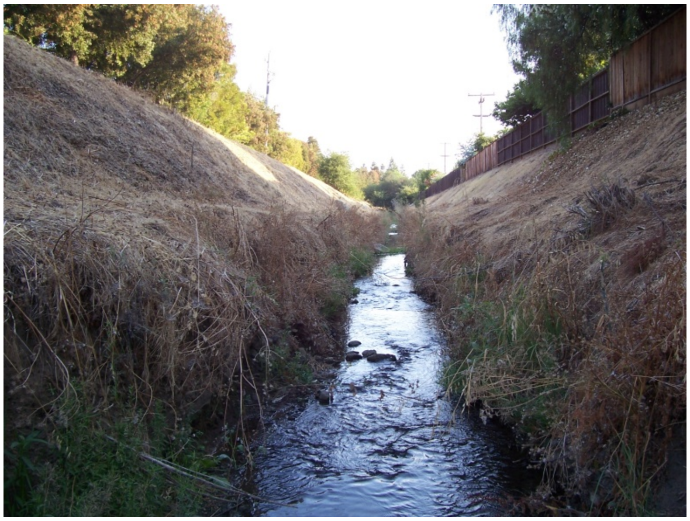


(49) sta. 37+50 Looking u/s- concrete riprap in channel, erosion on western bank



(55) sta. 41+90 Looking u/s - outfall on western bank, Pacifica Dr. culvert in distance

(53) sta. 39+50 Looking u/s @ Pacifica Dr. culvert in distance

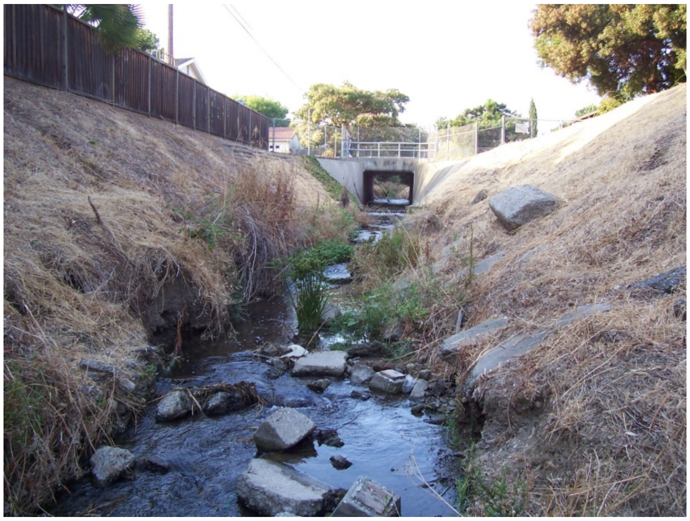


(58) sta. 45+00 Looking d/s @ mildly incised invert and earthen channel

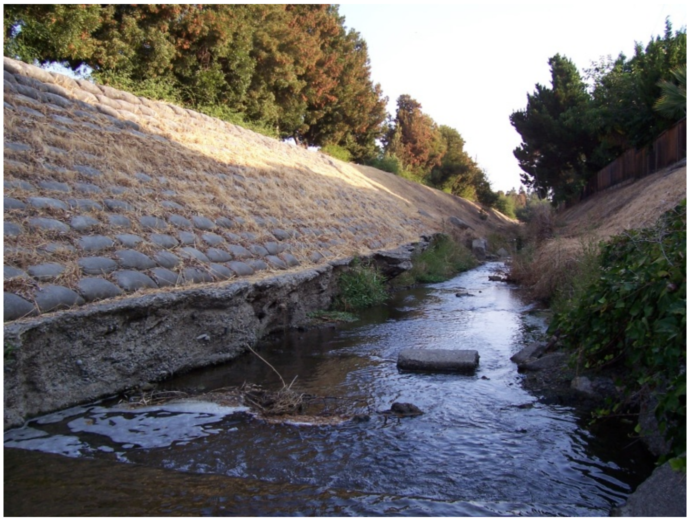
Channel Description:

The straight channel has unprotected earthen banks. There is rock riprap along the channel invert. The invert is incised with mild erosion along the toe. The very limited plant growth consists mostly of dry grass with the occasional bush.

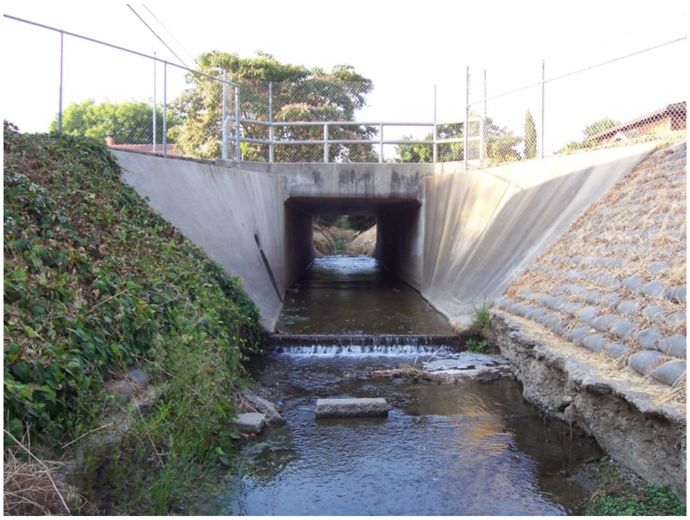
REGNART CREEK



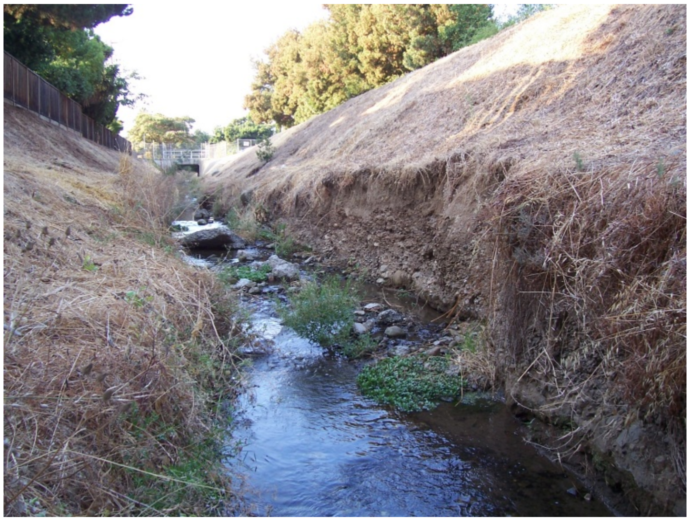
(59) sta. 46+50 Looking u/s @ Pacifica Dr. culvert in distance- concrete riprap in channel



(61) sta. 47+70 Looking d/s @ erosion @ toe of sacked concrete banks & drop structure



(60) sta. 47+25 Looking u/s @ Pacifica Dr. culvert transition there is a 1ft drop structure, erosion @ toe of sacked concrete banks



(57) sta. 45+00 Looking u/s @ erosion on western bank- Pacifica Dr. culvert in distance

Channel Description:

The section just downstream of Pacifica Drive is protected by sacked concrete on both banks. The eastern bank is covered with ivy and a drop structure has formed where the invert has eroded below the bottom surface of the concrete culvert and adjacent sacked concrete.
summer months as you approach Kim Street.

CALABAZAS CREEK
Tributary Supplement - Regnart Creek Reach #3

Reach 3: From upstream of Pacifica Drive Bridge to upstream of Antoinette Drive Bridge (Sta. 48+19 to Sta. 58+95)

Reach Description: Grass covered low earthen banks with the occasional large outgrowth of ivy or isolated tree cover. Improved section where the creek makes a 90 degree bend. Low flow channel is incised about 2-4 feet in areas. There is an access road on the west bank.

Reach Average Invert Slope: Invert approximate average slope for this reach is 0.006 (Sta 48+19 to Sta 58+95).

1% Flow: 400 cfs

10% Flow: 260 cfs

Current Reach Capacity: This reach has the capacity to convey 1% flow (560 cfs) from upstream of Pacifica Drive to upstream of Antoinette Drive.

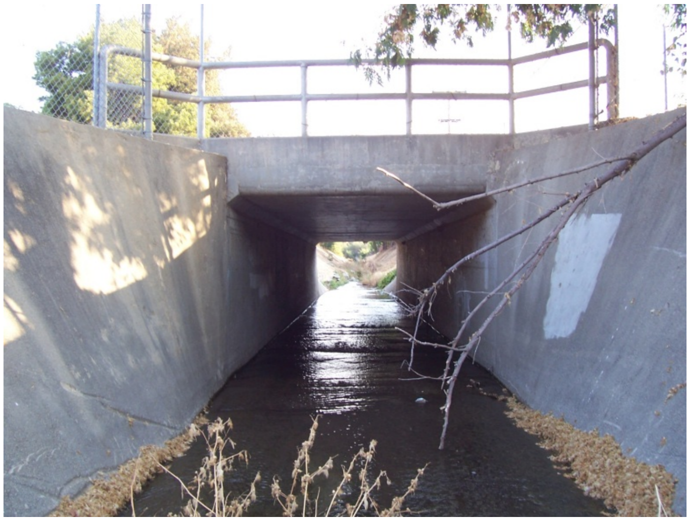
Reach Flooding area Profiles: No flooding issues exist within this reach.

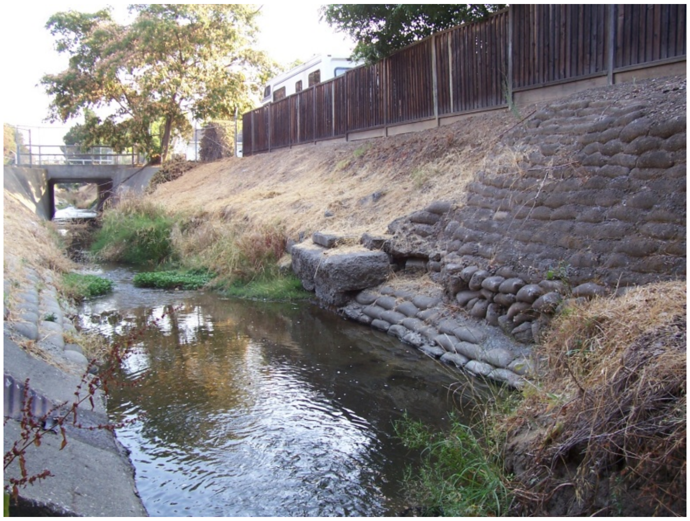
Reach Roughness Coefficient: For this report the roughness coefficient of .05 for natural channel, .044 for rock bed, and .036 for sack concrete was used. For areas with concrete material (bridges and wing walls and etc.) the roughness coefficient was .015.

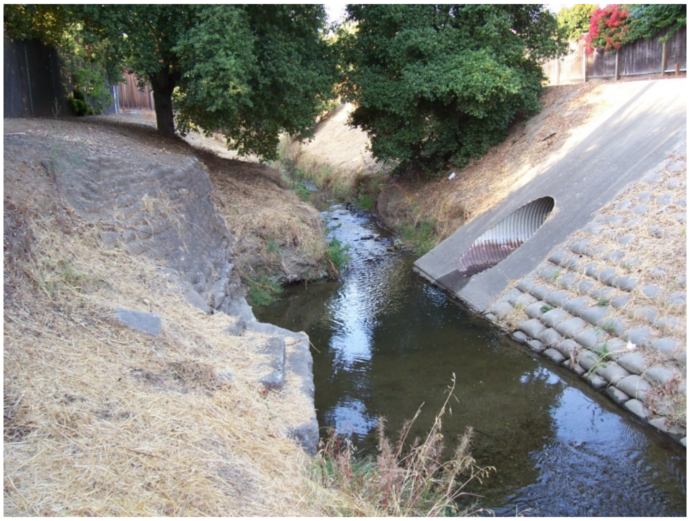
Reach Typical Photos: See the following pages for typical photos and their channel descriptions. Pagination of photos is 3-1 to 3-2. For location and stationing see Figure 1.

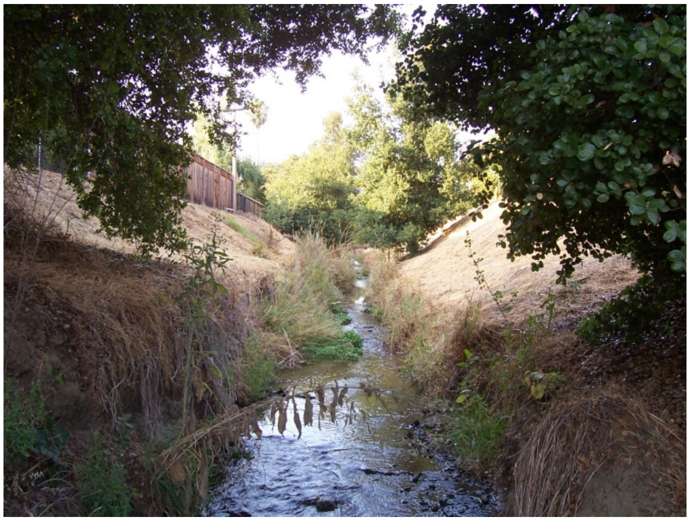
Reach Erosion Problem: The erosion on the outside of the bend at sta. 54+30 has been mitigated with rock toe and bank protection, backfill, new plantings, and straw wattles. The low flow channel is mildly incised.

REGNART CREEK


(63) sta. 48+45 Looking d/s @ u/s face of Pacifica Dr. culvert


(66) sta. 49+50 Sacked concrete, concrete protection on eastern bank opposite large outfall which is adjacent to deep pool

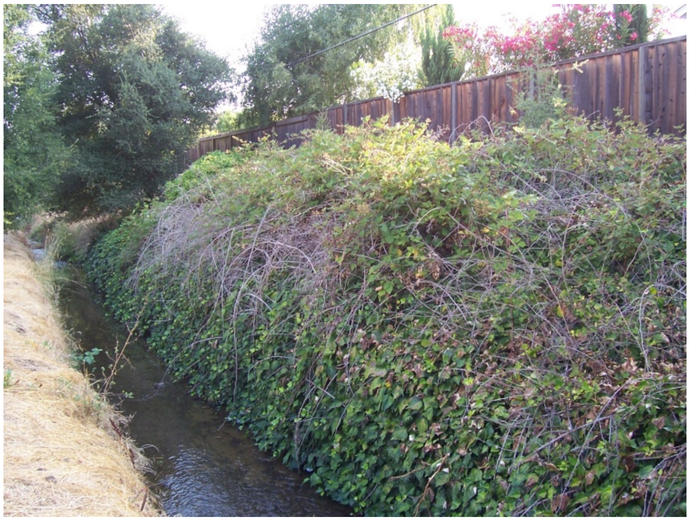

(64) sta. 48+75 Looking u/s @ large outfall, concrete structure, and deep plunge pool u/s of Pacifica Dr. culvert

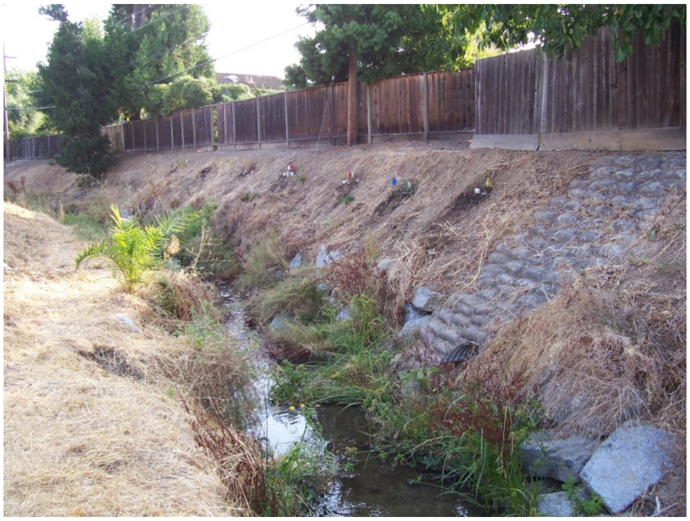

(67) sta. 49+50 Looking u/s from deep pool which is just u/s of Pacifica Dr. culvert

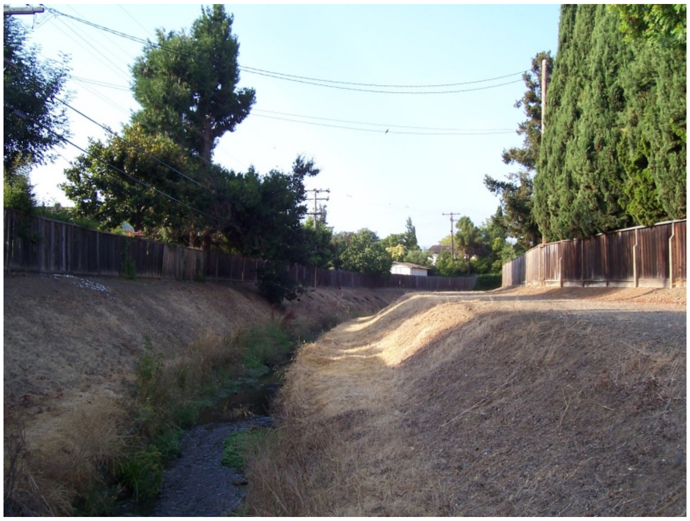
Channel Description:

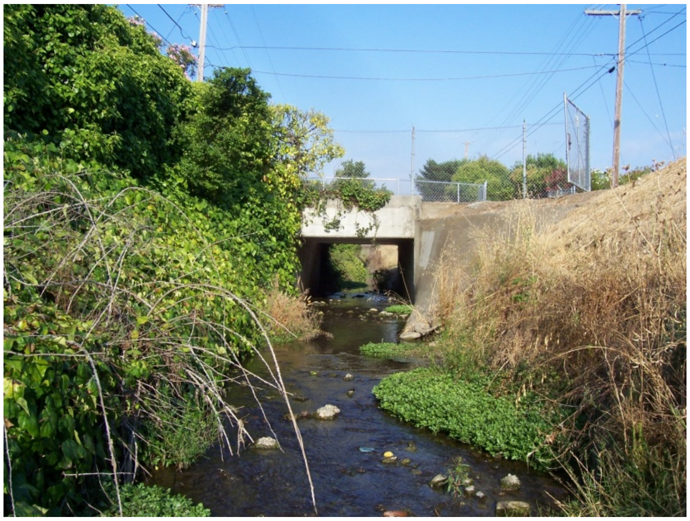
The section just upstream of Pacifica Drive is protected by sacked concrete on the western bank with a grass-covered earthen east bank. A large outfall is positioned just downstream with old concrete protection on the opposite bank and a deep pool at the base. Upstream of the pool the channel banks are lower and unprotected.

REGNART CREEK


(69) sta. 51+95 Looking d/s- large growth of ivy on eastern bank


(75) sta. 55+00 Looking d/s- sacked concrete outfall & new saplings on southeast bank, straw wattles on northwest bank


(70) sta. 52+80 Looking u/s @ 90º bend to the west- low, earthen banks, incised invert


(80) sta. 57+80 Looking u/s @ Antoinette Dr. culvert- ivy covers sacked concrete on southern bank

Channel Description:

The top of bank is lower in this section with recent erosion protection work done to the outside of a 90 degree bend near the end of the reach. For the protection, large boulders have been added and the bank backfilled with soil accompanied by young saplings. Straw wattles have been placed along the inside of the bend. Large growths of ivy occur on the left bank (looking upstream) at both the beginning and end of the reach.

CALABAZAS CREEK
Tributary Supplement - Regnart Creek Reach #4

Reach 4: From upstream of Antoinette Drive Bridge to entrance of culvert under DeAnza Blvd (Sta. 58+95 to Sta. 64+87)

Reach Description:
The channel in this reach is characterized by a heavily vegetated earthen southern bank and grass covered northern bank. A greater water depth accompanies a numerically smaller slope than downstream reaches. The channel invert contains mostly sandy gravel with little to none of the large rocks seen downstream. Most of the riparian cover is from trees on the other side of the fence line. At the upstream section of this reach is a rectangular curved flume where the creek exits a tunnel under DeAnza Blvd. A large drop structure occurs at the end of this curved portion with a smaller drop where the edge of the concrete meets the unprotected invert. Upstream of this structure, the creek passes through a culvert underneath DeAnza Blvd. which begins at station 64+87.

Reach Average Invert Slope: Invert approximate average slope for this reach is 0.006 (Sta 58+95 to Sta 64+87).

1% Flow: 400 cfs

10% Flow: 260 cfs

Current Reach Capacity: This reach has the capacity to convey 1% flow (560 cfs) from upstream of Antoinette Drive to upstream of tunnel entrance under DeAnza Blvd.

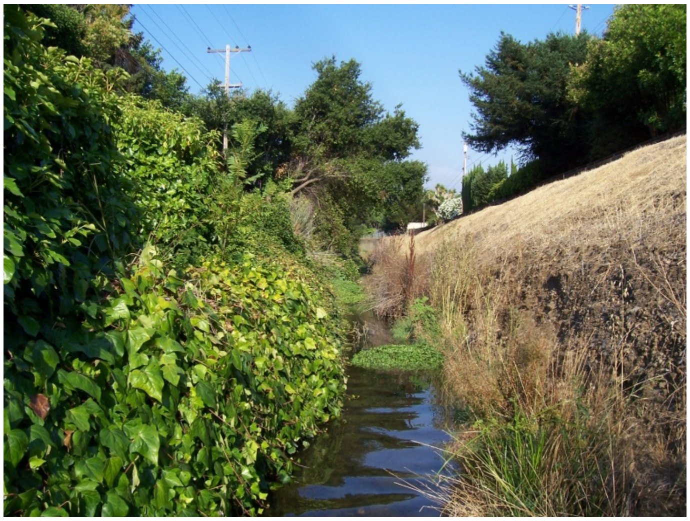
Reach Flooding area Profiles: No flooding issues exist within this reach.

Reach Roughness Coefficient: For this report the roughness coefficient of .05 for natural channel, .044 for rock bed, and .036 for sack concrete was used. For areas with concrete material (bridges and wing walls and etc.) the roughness coefficient was .015.

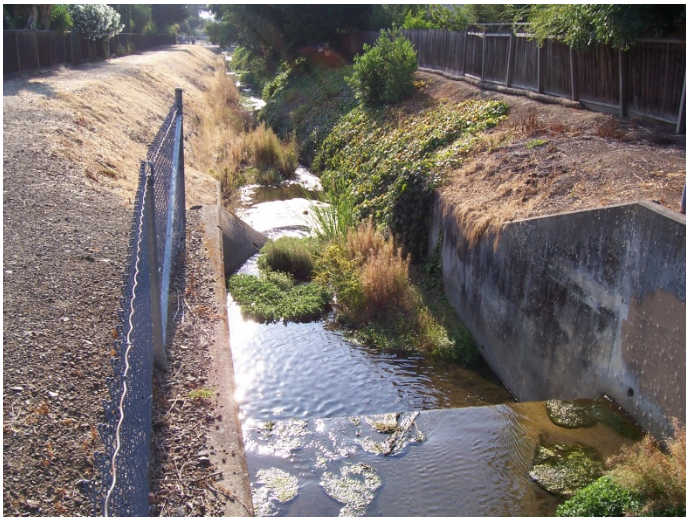
Reach Typical Photos: See the following pages for typical photos and their channel descriptions. Pagination of photos is 4-1. For location and stationing see Figure 1.

Reach Erosion Problem: No significant erosion was noted in this reach.

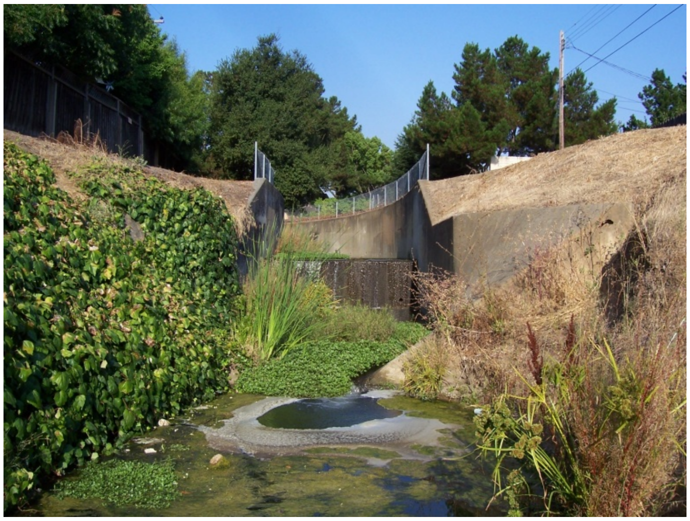
REGNART CREEK



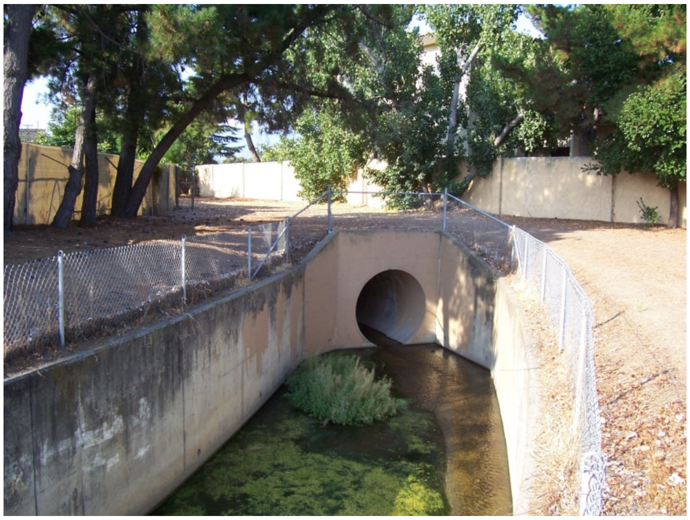
(84) sta. 59+40 Looking u/s from u/s face of Antoinette Dr. culvert- heavy ivy on southern bank- slack water, pools



(89) sta. 63+40 Looking d/s from top of northern bank @ drop structures, pools, and aquatic growth



(85) sta. 62+50 Looking u/s @ drop structures, concrete transition, plunge pools, and ivy d/s of Regnart tunnel exit



(90) sta. 63+85 Looking u/s @ d/s exit of Regnart Creek tunnel east of DeAnza Blvd.

Channel Description:

Upstream of Antoinette Drive the channel is straight, trapezoidal, and has earthen banks. The southern bank is covered with ivy and the northern is grass covered. The water is slower moving with pools. At station 62+50 a rectangular curved section begins with two drop structures, plunge pools, and thick vegetation. At the upstream end of this structure is the exit to the tunnel under DeAnza Blvd.

CALABAZAS CREEK
Tributary Supplement - Regnart Creek Reach #5

Reach 5: From upstream of culvert entrance under De Anza Blvd to Kim Street (Sta. 64+87 to Sta. 83+89)

Reach Description:
The channel in this reach is characterized by a long culvert passing under De Anza Blvd. comprising of a 600' long 84" RCP, a 6' long 10'x4.6' RCB, and a 169' long 10'x7' RCB. The RCP and each RCB are separated by 2.5' drop (2 drops within the culvert total). The channel upstream of the culvert is straight and characterized by grassed covered earthen banks. The channel invert contains mostly sandy gravel with no large rocks seen downstream and consists of large clumps of watercress increasing significantly especially near Kim Street. Most of the riparian cover is from trees on the other side of the fence line with some sporadic groupings of trees along the southerly bank. There is one drop structure immediately upstream of the culvert entrance and 2 additional drop structures before Kim Street.

Reach Average Invert Slope: Invert approximate average slope for this reach is 0.008 within the De Anza Blvd. culvert (Sta. 64+87 to Sta. 72+29) and 0.006 upstream of the culvert (Sta .72+29 to Sta. 83+89).

1% Flow: 400 cfs

10% Flow: 260 cfs

Current Reach Capacity: The De Anza Blvd. culvert and reach section upstream to the top of the first drop is under capacity and can only convey 490 cfs (Sta. 64+87 to Sta. 75+58); the reach section from upstream of this drop to the downstream face of Kim Street can convey the 1% flow (560 cfs).

Reach Flooding area Profiles: The culvert under De Anza Blvd. is under capacity and as a result flooding is an issue from the culvert entrance to the first drop just upstream of the culvert.

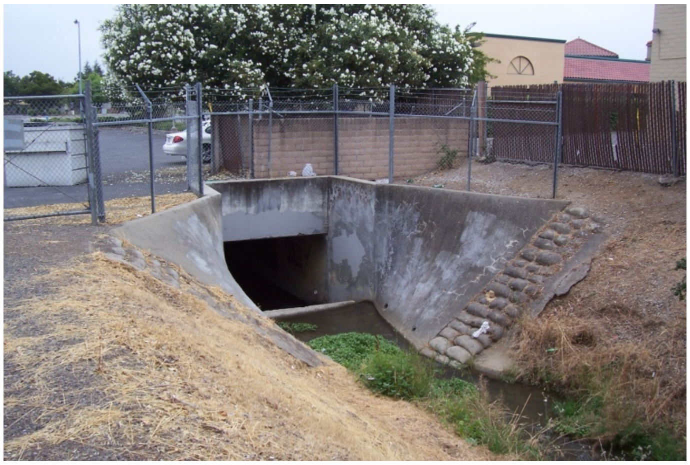
Reach Roughness Coefficient: For this report the roughness coefficient of .05 for natural channel, .044 for rock bed, and .036 for sack concrete was used. For areas with concrete material (bridges and wing walls and etc.) the roughness coefficient was .015.

Reach Typical Photos: See the following pages for typical photos and their channel descriptions. Pagination of photos is 5-1 to 5-3. For location and stationing see Figure 1.

Reach Erosion Problem: No significant erosion was noted in this reach.

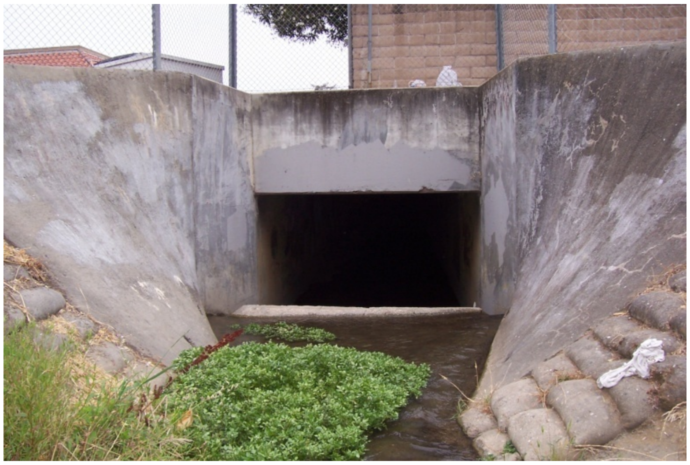
REGNART CREEK

(91) sta. 72+44 Looking u/s and to the southwest @ the access road on the north bank adjacent to the Regnart tunnel entrance.



(93) sta. 73+00 Looking d/s @ the tunnel entrance and parking lot.

(92) sta. 72+51 Looking u/s from the tunnel entrance there is and access road on the north bank.

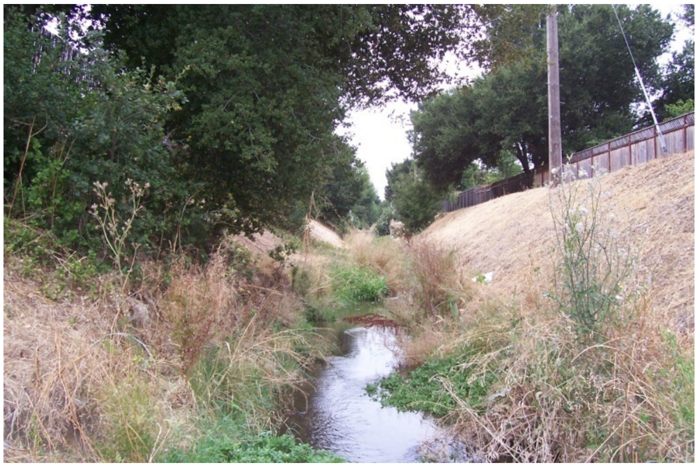


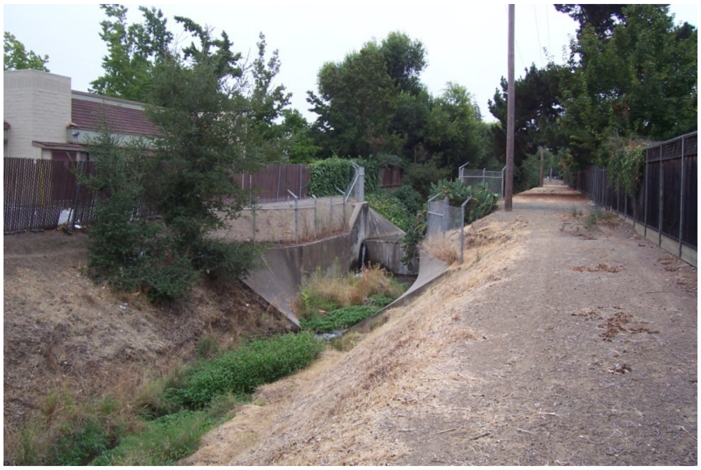
(94) sta. 72+86 Looking d/s @ tunnel entrance. The water is diverted to either side of a drop just u/s of entrance.

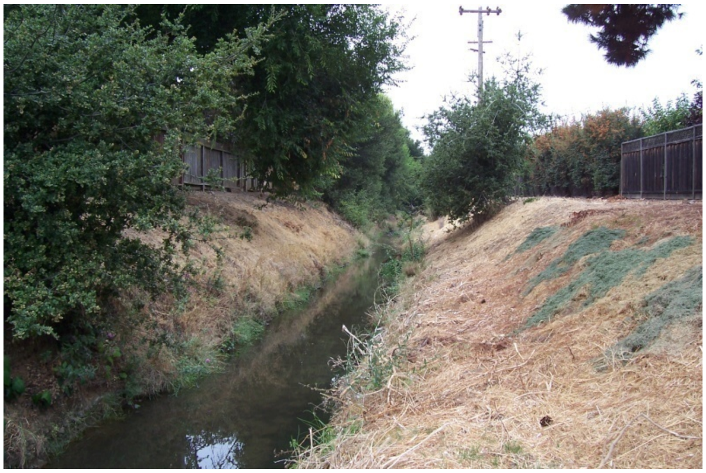
Channel Description:

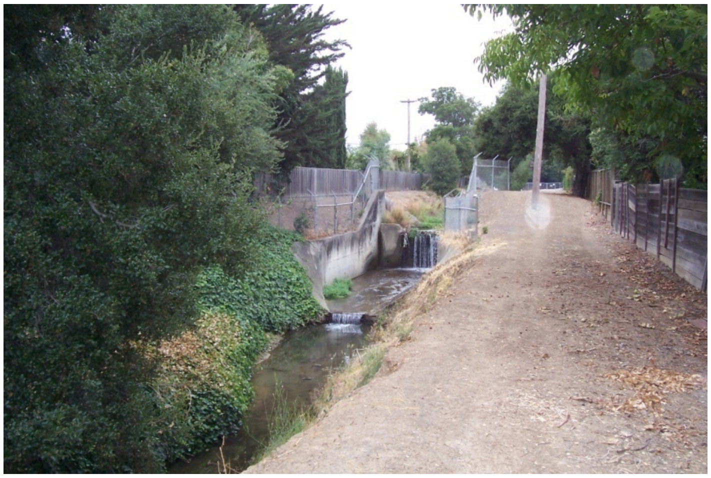
Upstream entrance to the Regnart/DeAnza culvert; note how the creek drops into the culvert and flows under DeAnza Blvd.; there are parking lots on either side of the De Anza Blvd. Upstream the channel is straight and trapezoidal.

REGNART CREEK


(95) sta. 72+55 Looking u/s from De Anza Culvert entrance towards first of two drop structures.


(98) sta. 74+55 Looking u/s @ first of two drop structures; 5' drop structure.

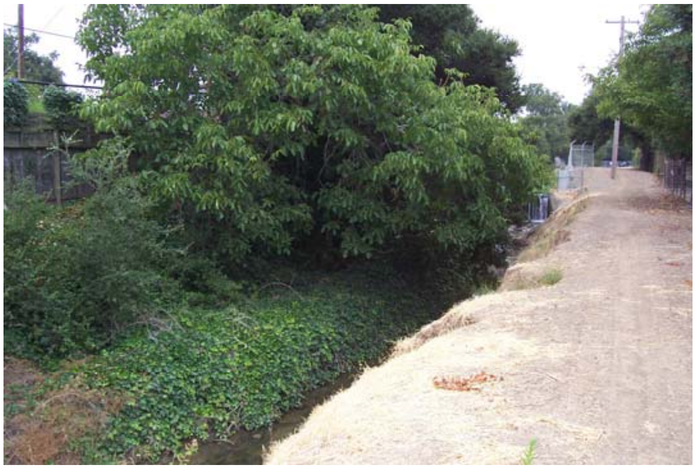

(105) sta. 75+00 Looking u/s from first drop structure towards second drop structure.


(109) sta. 78+75 Looking u/s @ second drop structure; note large clump of trees on southern bank; drop is 6.7'.

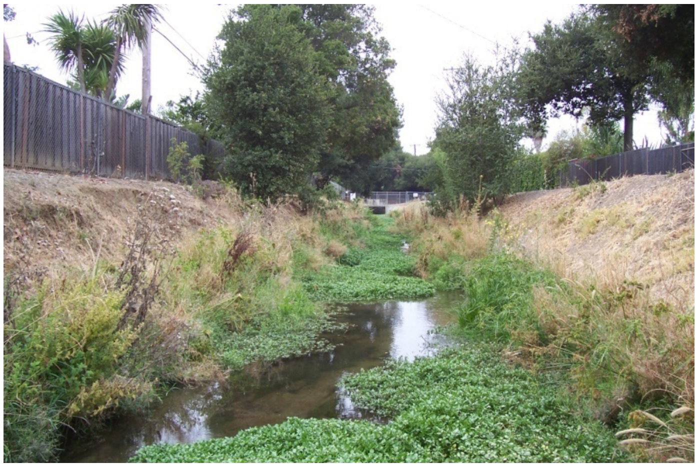
Channel Description:

Upstream of the Regnart / DeAnza culvert the channel is straight and trapezoidal. The bank growth consists mostly of dry grass with sporadic trees mostly on the southern bank.

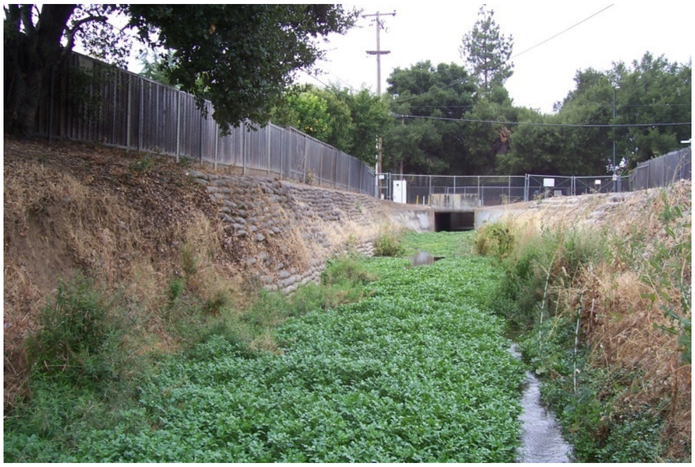
REGNART CREEK



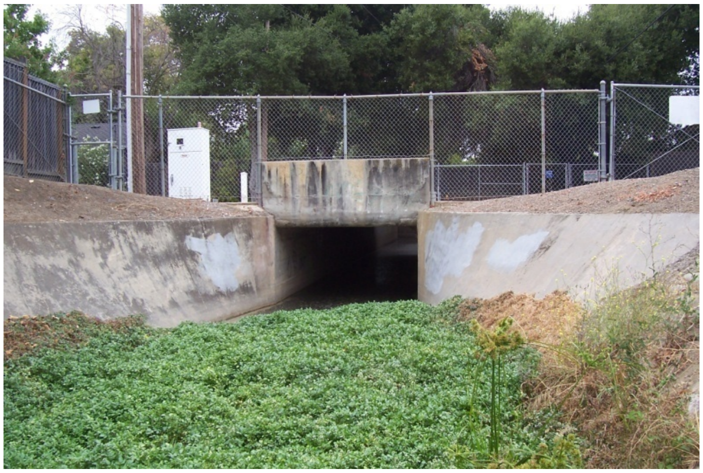
(108) sta. 78+30 Looking u/s mid-distance between 2 drop structures; note large number of trees on southern bank.



(116) sta. 80+50 Looking u/s from second drop structure towards Kim Street; invert is becoming increasingly covered by watercress.



(118) sta. 82+60 Looking u/s towards Kim Street, just u/s both banks are covered by sacked concrete and the invert is covered by watercress.



(121) sta. 83+50 Looking u/s @ Kim Street Bridge, entire creek bottom is covered by watercress'.

Channel Description:

In this section of creek the channel is straight and trapezoidal in shape. The bank growth consists mostly of dry grass with sporadic trees mostly on the southern bank. Watercress is increasing significantly in the summer months as you approach Kim Street.